Students of the air : some provisional thoughts on architecture and climate change

This collectively produced contribution is the outcome of ‹Situating Climate Change›, a seminar taught by Emily Eliza Scott at the gta ETH fall semester 2016. It brings together a range of current inputs on architecture and climate change drawn from a series of student-led interviews; class discussions and readings; and, lastly, a field trip to Switzerland's rapidly receding Aletsch Glacier. They appear here as partly sifted particles of thought in an as-yet largely undefined discursive field. The discipline of architecture has been slow to engage with the vast and highly unsettling topic of climate change, especially in ways beyond the technical (e.g., efficiency standards). As several commentators in this piece remind us, however, also at root and at stake in climate change are issues of a social, political, economic, philosophical, and ethical nature.

Our class conversations indeed wrangled with a number of interrelated and wide-reaching questions: At what scales does architecture intersect with climate change? Which skills do architects bring to the table in the face of this accelerating and planetary-scale phenomenon? Does climate change demand a reimagining of the field? What would an architecture look like that, rather than sheltering humans from the environment, instead served as an interface between the two—orienting itself to the human and nonhuman at the same time? Is less comfort, or even discomfort, ultimately safer in our present moment?

Students of the Air: Some Provisional Thoughts on Architecture and Climate Change

«The ‹atmosphere› that envelopes the ball we inhabit is the only cosmic sphere spoken of by the Ancients that has preserved a certain meaning for the moderns. The term (literally: ‹fog ball›) designates that gaseous layer that envelopes solid Earth and that makes us all ‹students of the air›, to borrow Johann Gottfried Herder's beautiful expression.»[1] *Peter Sloterdijk (Professor of Philosophy and Aesthetics, Karlsruhe University of Arts and Design)*

«I think the focus of our generation shouldn't be about feeling and grieving, but about acting. How can my region reinvent itself? How can we reflect on our own identity? How can one keep traces of these elements of which we are so proud of?» Maged El Sadek

«Architecture has always looked back at its origins. From the primitive shelter of Laugier to the geodesic domes of R. Buckminster Fuller, a common, unavoidable constraint has always remained: architecture is a pro-

tection from the environment. In this sense, a very primal and fundamental link exists between architecture and climate change.» *Maged El Sadek*

«Air is the most elusive of the classical elements. It is as high as the sky, invisible and shapeless, a breeze or a storm. It is nobody's property: a borderless movement, local and continent-wide at the same time, a well-mixed global common, a planetary layer of haze.»[2] *Wolfgang Lucht (Co-Chair of the Potsdam Inst. for Climate Impact Research & Alexander von Humboldt Chair in Sustainability Science, Dept. of Geography, Humboldt University Berlin)*

«Architecture is a kind of frozen state of carbon and energy.» *Yangzom Wujohktsang*

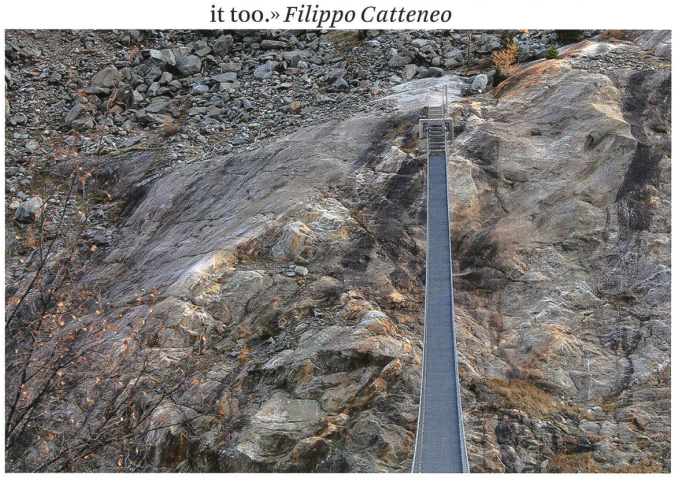
«Climate change implies a responsibility way beyond immediate need to much longer time spans. This opens up a whole new way of looking at architecture. If you think of a building as something that is part of geologic time, it is a material deposit for future uses, not just something designed for its own use cycle. How it endures or disassembles becomes part of the logic of construction.» *Sarah Nichols (Doctoral Fellow, gta, ETH)*

«Climate change poses a new time horizon to architects, who need to take into account a much higher degree of uncertainty now. [...] This uncertainty encompasses not only the objects we design, but also the environmental contexts in which they exist. [...] Traditionally, architects have focused on the production of new objects rather than planning for dislocation and disappearance. In the face of climate change, such aspects need to be addressed.» *Lauro Foletti*

«Our permanent legacy will not be architectural, but chemical. After the last dam bursts, after the concrete monoliths crumble into the lone and level sands, modernity will leave behind a chemical signature, in everything from radioactive waste to atmospheric carbon. This work will be abstract, not figurative.»[3] *McKenzie Wark (Professor of Culture and Media Studies, The New School for Social Research)*

«Whatever we build ends up somewhere—in the earth, in the water, in the atmosphere [...]. I build mainly with local materials, for example, mud and bamboo. It is fascinating for me just to take material from the soil, from the ground that can be returned to the ground without any harm to the environment. This very short cycle of materials is something we kind of lost in our contemporary architecture. [...] Whatever I am designing, I try to multiply it seven billion times in my head and I ask myself: what would be the effect on society and on the environment? Would I make a few people rich or would the masses get the profit? [...] Would I exploit the planet's natural resources? Would people everywhere have access to these things?» *Anna Heringer (Honorary Professor UNESCO Chair for Earthen Architecture, Constructive Cultures and Sustainable Development, ETH Zürich & Principal of Studio Anna Heringer)*

«Climate has always shaped architecture. For instance in Africa, there always have been earth igloos or Rondavels which are very effective to protect against heat, the pile houses on the water in Indonesia or the blockhouses in the Alps. I think it could be very interesting to re-integrate that into our designs, re-work with the region where we are. This could also change the way people think about the site, make them feel more rooted in a way, care a bit more about where they are and therefore maybe try to preserve it too.» *Filippo Catteneo*



«At the bridge, you could feel that the glacier was supposed to stop nearby, but from here, you cannot see anything of it.» Azadeh Karimi

«Climate change occasions a rethinking of the role of the architect—not so much as a builder or designer, but as a social actor who can help society engage with alternative futures and new ways of living.» *Amalia Bonsack*

«Climate change directly affects architecture and urban planning. One the one hand, architecture and planning are adapting to the worldwide trend to evade endangered zones, such as coastlines, and move towards better protected areas, most notably cities. On the other hand, they adapt to the growing demand for an environment that consumes less resources and emits less pollution. In my view, architecture will not solely react to these trends, but also actively shape the discussion. It will play a crucial role in mediating and

articulating the relations between the human subject and its rapidly changing environment. It will be a testing ground for a relation that is unforeseeable and complex. It will produce examples for ways to live [...]. It will intersect with climate change on various scales, from the very large scale of infrastructure to the very small scale of the immediate environment of the individual.» *Philip Ursprung (Professor of History of Art and Architecture, gta, ETH)*

«We [as architects] are visualizers. We can conceptualize. We can connect the dots. We can adapt and engage, understand the world as it is and engage people in a process that is change oriented. [...] How can we imagine new energy landscapes and the impacts of these new energy landscapes? How can we de-carbonize our settlement patterns?»[4] *Kate Orff (Associate Professor of Architecture and Urban Design, Columbia GSAPP & Founder/Principal of SCAPE)*

«Many more topics should be introduced to architectural thinking, such as environmental engineering, health, food, energy; the whole world should be influencing our architecture somehow.» *Aurèle Gheyselinck*

«[...] every technical solution also has social implications. Any deployment of technology is thus essentially a socio-technical endeavor if the realm of technology is primarily socially determined, then by consequence, territory must be taken into account as a form of socio-technical register, one both registering and determining human action. By extension, the largest territory is the globe, which by now has been entirely urbanized, or better, ‹technologized›. [...] In this regard, architectural discourses are just in the process of being formed, yet we still have a long way to go.» *Marc Angélil (Professor of Architecture and Design, ETH & Partner, AGPS Architecture)*

«The context of climate change asks us to take our individual disciplines less seriously and start making connections between fields—to try and grasp ‹the big picture›. [...] The ability to think transversally is very present in architectural practice, where it is necessary to bridge communication between clients, engineers and builders. Maybe such an awareness is indispensable in navigating the Anthropocene.» *Anna Mayberry*

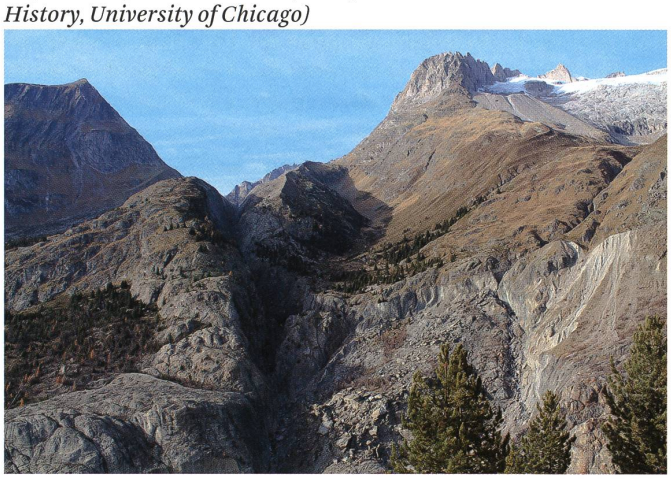
«Who is really a specialist of climate change?» *Thierry Raess*

«Maybe, architecture doesn't have to be stupid after all. Liberated from the obligation to construct, it can become a way of thinking about anything—a discipline that represents relationships, proportions, connections, effects, the diagram of everything.»[5] *Rem Koolhaas (Co-Founder of Office for Metropolitan Architecture)*

«Over the last century or so, the design fields have become an important ‹discursive site› for debating and thinking about environmental complications, and about energy in particular. This is in part because these professions are concerned with the formal and physical practicalities of the built environment—such as global flows of materials and energy—and in part because of the strong disciplinary tradition of projecting a design concept into a future scenario. Architects have frequently been enlisted [...] to envision future conditions based on research from diverse fields—including economics, policy analysis, energy forecasting—and to think creatively about environmental change.»[6] *Daniel Barber (Assistant Professor & Associate Chair, University of Pennsylvania School of Design)*

«The growing trend in architecture of working across different but complementary disciplines (e.g., sociology, art, technology) might promote a better understanding of the problematics of climate change as well as lead to solutions that involve the environment, society included.» *Elena Lurati*

«The task of placing, historically, the crisis of climate change thus requires us to bring together intellectual formations that are somewhat in tension with each other: the planetary and the global; deep and recorded histories; species thinking and critiques of capital.»[7] *Dipesh Chakrabarty (Professor in History, University of Chicago)*



«It has been said for a couple of decades now that by the time that temperature stabilizes again, the Yucatan peninsula, belonging to my country and which represents the major point of income to it, will have disappeared underwater. [...] I can't help think that the disappearing the iced areas of the Alps has the same sentimental consequences to Swiss people.» Alberto Oliver

«The old joke—Everyone talks about the weather, but nobody does anything about it—isn't so funny anymore. Lots of people are trying to do something about the weather. Climate change is on the geopolitical agenda, if only in time for us to realize that

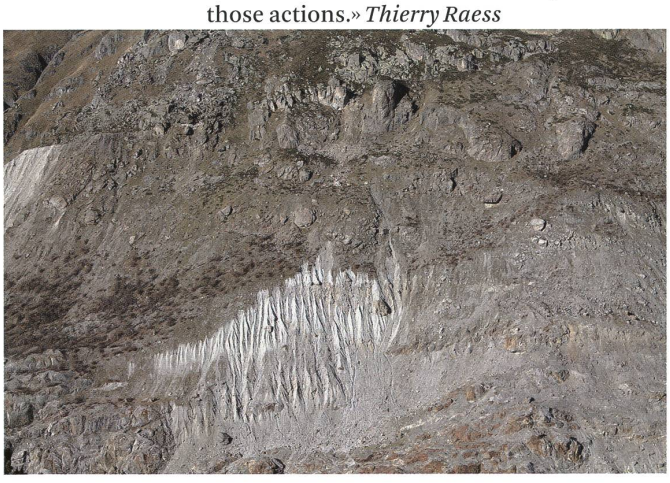
it's too late to do anything meaningful. Maybe the problem's not that no one's been doing anything about the weather, but that we've been talking about it in the wrong way: the old «let's fix it» way. Now that the weather's changed, is it also time to change the way we talk about it?»[8] *Dear Climate*

«What is the role of the architect in relation to the environment? [...] Architecture, by definition, has always been concerned with shelter—a protection against nature and the elements; a controlled condition. However, over time, a paradox has arisen: the very building (and use) of this shelter aggravates the surrounding conditions from which it is meant to protect us.» *Lloyd Broda*

«The expansionist, extractive mindset, which has so long governed our relationship to nature, is what the climate crisis calls into question so fundamentally. The abundance of scientific research showing we have pushed nature beyond its limits does not just demand green products and market-based solutions; it demands a new civilizational paradigm, one grounded not in dominance over nature but in respect for natural cycles of renewal—and acutely sensitive to natural limits, including the limits of human intelligence.»[9] *Naomi Klein (Journalist, Activist, & Author of ‹This Changes Everything: Capitalism vs. the Climate›)*

«How much space does one need and how much energy does one need to keep up the comfort we've become used to?» *Fabian Meier*

«Where does architecture start and where does it end? What exactly is climate change and where does it come from? What is clear is that both are related to human activity. One tries to provide for the needs of humans and the other is a consequence of those actions.» *Thierry Raess*



«So what is the Swiss identity in fifty or a hundred years going to be, when snow and ice become only legends and tales?» Steve Dijkhuizen

«Presupposing that we are talking about architecture in terms of an expanded field (i.e., not exclusively material objects or facilities but also as a form of civic engagement) [...] architecture will definitely need to keep producing new paradigms of living. For example, we will have to give up ‹an oil hungry urbanization that has perpetuated cities of consumption› (Teddy Cruz) and rethink urban growth.» *Ana Dojcinovic*

«We have to, on all spatial levels, rethink architectural and urban design. In order to address climate change, we have to work both with mitigation and adaptation. Mitigation concerning how to minimize and also ‹bind› green house gas emissions by ways of design. On an urban scale, this concerns designing for a fossil-free society.» *Lena Falkheden (Senior Lecturer and Director of Design for Sustainable Development MA program at Chalmers Technical University, Gothenburg, Sweden)*

«Building efficiency is relatively easy to achieve in many climates. But this is a social problem, not an individual one, and it should be addressed with regulations that set tighter goals.» *Dana Buntrock (Professor of Architecture & Chair of the Center for Japanese Studies, University of California, Berkeley)*

«At the Paris COP21 conference, they noted the fact that half of all energy consumption is in the building sector, more than from transportation. And they also spoke about where the materials are coming from, and that it's actually cheaper to use concrete, bricks, and windows that come from many miles away than the ones we produce locally [...].» *Filip Grebác*

«Paradoxically, to deal with climate change we need to unite our efforts globally to make our planet less ‹global›: to stop importing products from afar, to stop traveling excessive distance, to restrain our markets from creating unsustainable impacts on the environment. So, architecture cannot be the only solution to climate change, but it is part of it. As a tool, architecture [...] can help break down our social, economical, and political systems into smaller scales, making them [...] less energy-demanding.» *Bertran Suris*

«Climate change is too often addressed in schools of architecture and design in terms of technological solutions and their implementation—from ‹green› building techniques to the myriad challenges of fortifying metropolitan centers against extreme weather patterns. [...] As the defining factor of our precarious contemporary condition, the real and lived threat of climate change, exacerbated by uncertainty and shifting cultural contexts, invites us to move beyond technocratic conversations to interrogate the terms of the debate.»[10] *Event absract for GSAPP conference, «Climate Change & the Scales of Environment»*

«Minergie is creating a hermetically closed system. You have to put in so much effort to ventilate. You're just creating a small system that works on its own but doesn't have this wide view onto a bigger system. It's something that can be an alternative, but it's not a solution. [...] I think that there is some kind of monopolistic idea of how to sustain something and it becomes very unproductive.» *Yangzom Wujohktsang*

«[...] people are very much aware of climate change, but they are not aware of what is really the good thing to do for everybody, and also architects don't know what is really the good thing, the right thing to do about it. It's just like you are helpless following this rules and giving efficiency parameters, because you don't know, because you seem to be helpless. That should be changed.» *Muck Petzet (Associate Professor for Sustainable Design, USI / Accademia di Architettura di Mendrisio)*

«Climate change arrives in a world primed for crisis. The current and impending dislocations of climate change intersect with the already existing crises of poverty and violence. By this ‹catastrophic convergence›, I do not merely mean that several disasters happen simultaneously, one problem atop another. Rather, I am arguing that problems compound and amplify each other, one expressing itself through another.»[11] *Christian Parenti (Master Teacher, Liberal Studies, New York University)*

«It is difficult to figure out the global scale we have to take into account for climate change in relation to a precise spot like the glacier: I am wondering if we are really witnessing climate change.» Filip Grebáč

«[...] severe climate change and resulting social chaos are highly likely. Large parts of many major cities will become uninhabitable, requiring massive population shifts. This poses unprecedented challenges to the planning and architecture professions [...].»[12] *Michael B. Gerrard (Andrew Sabin Professor of Professional Practice at Columbia Law School)*

«We live in a world where everything is mobile: us, our cars, our computers. Why not our homes? [...] If we consider places like Venice or the Maldives, the question becomes serious and not utopic anymore.» *Apolinario Soares de Oliveira*

«[...] poor brown people confronting the threat of having their national territory swamped as a result of a 200-year experiment in hydrocarbon-fueled capitalism whose historic beneficiaries have been disproportionately rich and white. This image strikes at the heart of the debate over climate justice, at the inequities between those who have grown rich off hydrocarbon culture and the predominantly poor people—from the Maldives to Niger—who are low-level hydrocarbon consumers but at greatest initial risk from the climate crisis.»[13] *Rob Nixon (Professor of English & Humanities and the Environment, Princeton Environmental Institute)*

«I have to fly regularly across the world for my work in the field of sustainable urbanization. (Smiles painfully.) Flying is rather unsustainable. [...] It is a paradox. The question is whether this is the right way to operate. I am a person who is using his constant doubts to legitimate his actions. One of my theses is that today a sufficient degree of prosperity depends on a global economy, which needs global mobility to operate. Another one is that the exponential growth and dissemination in sustainable technology is the result of mass consumption, which enables innovation to be financed. Moreover the implementation of sustainable technology only soars since the market has discovered it to be profitable. [...] I could sit in my house and write inspiring articles on the basis of my experience and disseminate this by the internet. I could do a YouTube lecture that is disseminated all over the world. But in my experience, impact asks for phyiscal personal presence on site. Besides, the internet is a vital part of the global economic and mobility system and its energy use is steadily increasing.» *Kees Christiaanse (Professor of Architecture and Urban Design, ETH & Program Leader, Future Cities Laboratory & Founder/ Partner of KCAP)*

«[...] the ultimate aim of politics—and thus of design, planning, and architecture—is to change the given socio-environmental ordering in a certain manner. Like any intervention, this is a contested act, and its practice erases at least partly what is there in order to erect something new and different. The recognition that political acts are singular interventions that produce particular

socio-ecological arrangements and milieus and, in doing so, foreclose the possibility of others emerging is of central importance. The ‹violence› inscribed in such choice has to be fully endorsed.»[14] *Erik Swyngedouw (Professor of Geography, University of Manchester)*

«Even the most militant environmentalists still regard climate change as the ‹collateral of history›, the unintended byproduct of industrial development, trade and transport. Seen from the point of view of colonial history, however, climate change is the very telos of the colonial project and of modernity at large. [...] What would it mean to decolonize the climate?»[15] *Eyal Weizman (Professor of Visual Cultures & Director of the Centre for Research Architecture at Goldsmiths, University of London)*

«The Aletsch Glacier as a small piece of the giant puzzle that we are trying to reconstruct. [...] Is there an immediate, physical way of seeing climate change? How to relate this local phenomenon of glacier retreat to the whole ‹infrastructure› of global climate change, the causes and effects of which are so much spread over time and space?» Amalia Bonsack

«How will we adapt to the people made homeless and jobless by increasingly intense and frequent natural disasters? How will we treat the climate refugees who arrive on our shores in leaky boats? Will we open our borders, recognizing that we created the crisis from which they are fleeing? Or will we build ever more high-tech fortresses and adopt ever more draconian anti-immigration laws? How will we deal with resource scarcity?»[16] *Naomi Klein (Journalist, Activist, & Author of ‹This Changes Everything: Capitalism vs. the Climate›)*

«I don't think pessimism leads anywhere and these [climate change related] phenomena must now be taken as part of the cycle in which we are all actors.» *Charline Dayer*

1 Peter Sloterdijk, ‹Forward to a Theory of Spheres›, in: eds. Melik Ohanian and Jean-Christophe Royoux, ‹Cosmograms›, New York/Berlin 2005, p. 225.
2 Wolfgang Lucht, ‹Air: a Planetary Hybrid›, in: ‹Elements-Continents: Approaches to Determinants of Environmental History and their Reifications›, Berlin 2009), p. 46.
3 McKenzie Wark, ‹An Inhuman Fiction of Forces›, in: Ed Keller, Nicola Masciandaro, Eugene Thacker, ‹Leper Creativity: Cyclonopedia Symposium›, Brooklyn, p. 40.
4 From ‹Drain: Planning for Climate Change› dialogue with Naomi Klein and Kate Orff, moderated by Laura Kurgan, Columbia GSAPP, https://www.youtube.com/watch?v=xaABvivjujY. Retrieved: Sept. 24, 2014.
5 Rem Koolhaas, ‹Content›, New York 2004, p. 20.
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12 Michael B. Gerrard, talk delivered at ‹Climate Change & the Scales of Environment› conference, Columbia GSAPP, Dec. 4, 2015.
13 Rob Nixon, ‹Slow Violence & the Environmentalism of the Poor›, Cambridge 2011, p. 266.
14 Erik Swyngedouw, ‹The Violence of Sustainable Urbanity›, in: Harvard Design Magazine 37, Winter 2014, p.28.
15 Eyal Weizman, talk delivered at ‹Climate Change & the Scales of Environment› conference, Columbia GSAPP, Dec. 4, 2015.
16 Naomi Klein, ‹Capitalism vs. the Climate›, The Nation (Nov. 9, 2011).

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The following students worked on this contribution under the coordination of Emily Eliza Scott: Amalia Bonsack (fig. p.134), Lloyd Broda (editorial team, interview with Lena Falkheden), Filippo Cattaneo (editorial team, interview with Sarah Nichols and with Kees Christiaanse), Charlene Dayer (fig. p.135), Steve Dijkhuizen, Gabriel Disner, Ana Dojcinovic (interview with Philip Ursprung), Maged El Sadek, Lauro Foletti (editorial team), Aurèle Gheyselinck (fig. pp.131-132), Alain Glasson (editorial team), Filip Grebác (fig. p. 130), Linda Hatava, Azadeh Karimi, Mirjam Lerch (interview with Anna Heringer), Elena Lurati, Anna Mayberry (interview with Marc Angélil), Fabian Meier, Alberto Oliver, Thierry Räss, Domenic Schmid (interview with Marc Angélil), Apolinário Soares de Oliveira (fig. p.133), Tudor Stefanescu (interview with Muck Petzet), Bertran Suris, Sylea von Stokar (interview with Anna Heringer), Yangzom Wujohktsang (interview with Dana Buntrock and with Kees Christiaanse).